

REMARKS

Claims 1-7, as amended, remain herein. Claim 1 has been amended to clarify the function of the invention.

1. Applicants again acknowledge the need to file a certified copy of the French priority document. That document is being obtained and will be filed when received by applicants' attorneys.

2. Claims 1-3 and 6 were rejected under 35 U.S.C. §103(a) over Jenkins U.S. Patent 5,855,524 in view of Chang U.S. Patent 6,402,636, or Chang in view of Jenkins; claims 4 and 5 were rejected under 35 U.S.C. §103(a) over Jenkins in view of Chang, or vice versa, in view of Inamori U.S. Patent 3,975,023; and claim 7 was rejected under 35 U.S.C. §103(a) over Jenkins in view of Chang, or vice versa, in view of Nagai et al. U.S. Patent 5,190,289.

The presently claimed clubhead has a loft angle greater than 45 degrees, a plurality of surface grooves, a surface roughness of less than 0.25 micrometers and a Vickers hardness

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greater than 5 GigaPascal. This arrangement is nowhere disclosed or suggested in either of the cited references.

Both the Office Action dated November 24, 2004 and May 23, 2005 (p. 3) state that:

Chang discloses a metal golf club having a striking face with a surface roughness of less than about 25 microinches, or 0.635 micrometers and a Rockwell C hardness of 45 to 65, equivalent to roughly about 459 to 902 Vickers or at least (sic, least) 14 GPa (see column 5, lines 11 through 53).

First, Chang's disclosed surface roughness is of the metal before applying Chang's PTFE coating. Second, in the description of Chang's surface hardness disclosure, the "equivalent to..." portion of that statement is erroneous. Chang '636, column 5, lines 52 recites: "The surface hardness ranges from 45 to 65 Rc..." This equates to only 4.5 to 8.8 GPa, not the much greater value stated in the Office Actions. On this point, also see applicants' claim 6.

The Office Actions of November 24 and May 24, 2004 admit that Jenkins '524 does not disclose a striking face roughness of less than 0.25 micrometers and cites Chang '636 as allegedly teaching same. The Office Actions further admit that Chang '636

teaches a surface roughness of less than about 0.635 micrometers and the above discussed erroneous Vickers hardness coefficient of at least 14 GPa, with the result of reduced backspin. The Office Actions argue that a person skilled in the art would have found it obvious to modify the clubhead of Jenkins '524 to have a surface roughness taught by Chang '636 "to reduce the spin imparted to a golf ball struck by the clubhead" (emphasis added here). But, while Chang '636 teaches a surface roughness of "less than about" 0.635 micrometers, Chang '636 does not disclose how much less than that figure, except to say that reduced backspin occurs.

Applicants' specification, page 3, line 35 to page 4, line 2, states that such reduction in spin does not happen at the presently claimed combination of extreme degrees of minimal surface roughness, and high surface hardness, i.e., a wedge having a highly polished strike face with a very high degree of hardness results in a considerable increase in backspin, contrary to expectations in the prior art that the level of friction between the strike face and the ball would markedly diminish and thereby reduce the backspin. Applicants'

specification, page 4, first full paragraph, describes JP 10 216 275 as a prior art reference teaching away from the presently claimed invention. JP '275 teaches measurements of reduced surface roughness and increased hardness showing a reduction of backspin, but only to the degrees of roughness and hardness stated, and no further.

Indeed, both JP '216 and Chang '636 take the reduced surface roughness and increased hardness only to certain limits, and no further. Chang '636 simply teaches reduced backspin obtained from a surface polished to have a surface roughness "less than about" 0.635 micrometers. Chang '636 does not teach applicants' extreme reduction of surface roughness of less than 0.25 micrometers together with an extreme degree of hardness of greater than 5 GPa. Accordingly, Chang '636 does not disclose or suggest a clubhead having a loft angle greater than 45 degrees, a plurality of surface grooves, a surface roughness of less than 0.25 micrometers and a Vickers hardness greater than 5 GigaPascal, as recited in applicants' claim 1.

Applicants' combination of a further degree of surface smoothness and further degree of hardness beyond that disclosed

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in the prior art does not result in reduced backspin, but instead, functions to achieve an unexpected, opposite effect, as now claimed, and as described in applicants' specification, page 4, second full paragraph.

Thus, the presently claimed invention achieves a result contrary to the expectations and teachings in the prior art. Contrary to the argument in the Office Action, a surface roughness of less than 0.25 micrometers and a Vickers hardness greater than 5 GigaPascal for a clubhead having an loft angle greater than 45 degrees, results in increased backspin.

Accordingly, the reason alleged in the Office Actions for modifying the clubhead of Jenkins '524 to have a surface roughness less than the roughness taught by Chang '636 "in order to reduce the spin imparted to a golf ball struck by the clubhead" is not supported by and indeed is contrary to the teachings of that prior art. Neither Chang '636 nor other prior art, such as JP '275, teaches or suggests that it would be beneficial or desirable to extend further the Chang '636 or JP '275 level of surface smoothness, together with a suitable degree of hardness, to applicants' claimed extreme levels where

increased backspin is achieved. A person skilled in the art, following Chang '636 or JP '275 would reduce the surface roughness and increase the hardness only to achieve the expected reduced backspin as described in those references. Neither reference teaches or suggests anything about applicants' extreme degrees of surface smoothness or hardness, that together produce an opposite effect, i.e., increased backspin.

Therefore, contrary to the prior Office Actions, a person skilled in the art would not have found motivation within Chang '636 or have any other reason for modifying the clubhead of Jenkins '524 to have significantly less surface roughness with significantly greater hardness beyond what is discussed in those references.

For the foregoing reasons, neither Jenkins '524 nor Chang '636 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention or its attendant advantages. Nor is there any disclosure or teaching in either of these references that would have suggested the desirability of combining any portions thereof effectively to anticipate or

suggest applicants' presently claimed invention and its attendant results. Claims 2, 3 and 6 which depend from claim 1, are allowable for the same reasons explained herein for claim 1. Accordingly, reconsideration and withdrawal of the rejections based on any combination of Jenkins and Chang are respectfully requested.

Inamori '023 and Nagai '289 were cited for alleged disclosure of ceramic material and a pattern of decreased surface roughness, respectively, but neither of Inamori '023 nor Nagai '289 provides the deficiencies of Jenkins '524 and/or Chang '636 explained above herein.

For all the foregoing reasons, none of Chang '636, Jenkins '524, Inamori '023 or Nagai '289 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention. Nor is there any disclosure or teaching in any of these references that would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants' presently claimed invention or its attendant advantages. Claims 2-7, which depend from claim 1, are

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allowable for the same reasons explained herein for claim 1. Accordingly, reconsideration and withdrawal of all rejections are respectfully requested.

All claims 1-7 are now proper in form and patentably distinguished over all grounds of rejection stated in the prior Office Actions. Accordingly, allowance of all claims 1-7 is respectfully requested.

Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives.

Respectfully submitted,

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